





- Project Overview
- Recap of Kick-Off Meeting
- Potential Hazards for 2018
- Risk Assessment Overview
- Risk Assessment Exercise
- Developing Objectives and Goals
- Next Steps and Action Items
- Questions

What is hazard mitigation?

- Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-made hazards.

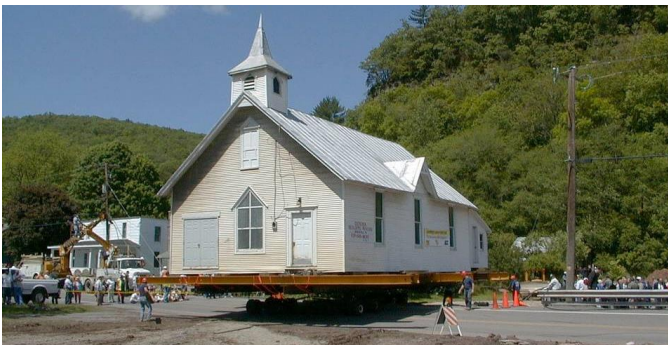


What is a hazard mitigation plan?

- A Hazard Mitigation Plan (HMP) is a community-driven, living document that communities use to reduce their vulnerability to hazards.

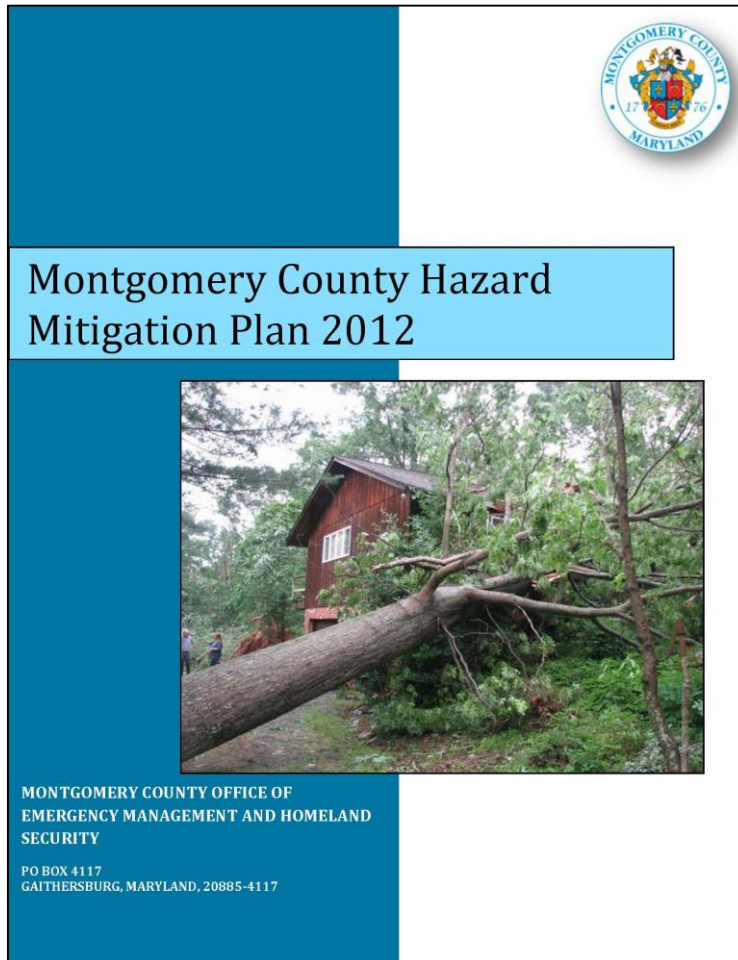
Why have a hazard mitigation plan?

- Counties must have a plan to maintain access to mitigation grants. These grants can augment local mitigation activities already being accomplished and can leverage other funding sources.



FEMA Grant Program Eligible Activities (as of June 20, 2017)

Mitigation Activity	HMA Program		
	HMGP	PDM	FMA
1. Mitigation Projects	✓	✓	✓
Property Acquisition and Structure Demolition	✓	✓	✓
Property Acquisition and Structure Relocation	✓	✓	✓
Structure Elevation	✓	✓	✓
Mitigation Reconstruction	✓	✓	✓
Dry Floodproofing of Historic Residential Structures	✓	✓	✓
Dry Floodproofing of Non-residential Structures	✓	✓	✓
Generators	✓	✓	
Localized Flood Risk Reduction Projects	✓	✓	✓
Non-Localized Flood Risk Reduction Projects	✓	✓	
Structural Retrofitting of Existing Buildings	✓	✓	✓
Non-structural Retrofitting of Existing Buildings and Facilities	✓	✓	✓
Safe Room Construction	✓	✓	
Wind Retrofit for One- and Two-Family Residences	✓	✓	
Infrastructure Retrofit	✓	✓	✓
Soil Stabilization	✓	✓	✓
Wildfire Mitigation	✓	✓	
Post-Disaster Code Enforcement	✓		
Advance Assistance	✓		
5 Percent Initiative Projects	✓		
Aquifer and Storage Recovery	✓	✓	✓
Flood Diversion and Storage	✓	✓	✓
Floodplain and Stream Restoration	✓	✓	✓
Green Infrastructure	✓	✓	✓
Miscellaneous/Other	✓	✓	✓
2. Hazard Mitigation Planning	✓	✓	✓
3. Technical Assistance			✓
4. Management Costs	✓	✓	✓



- Planning Process
 - Community Profile
- Hazard Identification and Risk Assessment (HIRA)
- Hazard Mitigation Strategy
 - Goals and objectives
 - Mitigation strategy
 - Mitigation capability analysis
- Plan Execution & Maintenance
 - Implementation
 - Evaluation, monitoring, and updating
 - Plan maintenance



What we Discussed?

- 2018 County Planning Process
- Hazards and Risks Identified in the 2012 Plan
- Completed Hazard Identification Exercise
- Completed Capability Assessment Survey
- Reviewed Hazard Mitigation Techniques
- Participation Opportunities
- Reviewed Project Schedule and Next Steps



Hazard Identification?

- Compared 2016 State Hazards to 2012 County Hazards
- Ranked Frequency of 2012 County Hazards
- Identified any new Natural or Human-made Hazards

Evaluation of Identified Hazards and Risk

Community/Organization:
Name and Title:

PART I: Identified Hazards

Identified Hazards (2012 HMP)	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? <small>NC=No Change Increase Decrease</small> <small>(Please provide an explanation for any hazards marked I or D in the "Additional Comments" column)</small>	Additional Comments
Natural Hazards		
Thunderstorm		
Winter Storm		
Extreme Heat		
Flooding		
Hurricane/Tropical Storm		
Fire		
Water Shortage		
Tornado		
Earthquake		
Land Subsidence/Karst		
Technological Hazards		
Hazardous Materials		
Dam Failure		

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PART II: Other Hazards

Do any of these hazards, not previously profiled in the County's hazard mitigation plan, have the potential to affect your community significantly and require focused mitigation efforts? (If so, check box)

Natural
☐ High Winds
☐ Hailstorms
☐ Radon Exposure

☐ Landslide
☐ Extreme Cold
☐ Invasive Species

Human-made
☐ Building or Structure Collapse
☐ Building or Structure Collapse (Bridge)
☐ Civil Disturbance
☐ Disorientation
☐ Drowning


☐ Mining Hazards
☐ Urban Fire and Explosion
☐ Utility Interruption
☐ War and Criminal Activity
☐ Mass Food/Animal Feed Contamination

Other Comments

Capabilities Assessment?

- Distributed Survey to receive jurisdictional information and feedback that will be used to evaluate mitigation capabilities and plan development.

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 **Capability Assessment Survey**

Community/Organization: _____
Name and Title: _____

Please indicate whether the following planning or regulatory tools and programs are currently in place or under development for your jurisdiction by placing an "X" in the appropriate box, followed by the date of adoption/update if known.

Tool/Program	In Place	Status	
		Date Adopted or Updated	Under Development
Hazard Mitigation Plan	X	2012	Yes - 2018
Emergency Operations Plan			
Evacuation Plan			
Continuity of Operations Plan			
Floodplain Management Ordinance			
Zoning Regulations			
Subdivision Regulations			
Comprehensive Land Use Plan (or General, Master, or Growth Management Plan)			
Stormwater Management Plan			
Natural Resource Protection Plan			
Capital Improvement Plan			
Excessive Community			
Storm Ready			
Building Code (please note if using UCC or not)			

Please email completed forms to Michael.Boldosser@montgomerycountymd.gov

1

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Available Staff and Technical Assistance:

Please indicate whether your jurisdiction has the following personnel resources on-staff or available to assist with hazard mitigation efforts.

Staff or Personnel Resource	Yes	No	Department or Staff Member	Comments
Land Use/Development Planning				
Engineering				
Emergency Manager				
Floodplain Manager				
Staff with experience using Geographic Information Systems software				
Grant-writing staff or other fiscal staff				

Self-Assessment of Capability:

Please provide an approximate measure of your jurisdiction's capability to effectively implement hazard mitigation strategies to reduce hazard vulnerabilities. Using the following table, please place an "X" in the box marking the most appropriate degree of capability (Limited, Moderate or High) based upon best available information and the responses provided in other sections of this survey.

Area	Degree of Capability		
	Limited	Moderate	High
Planning and Regulatory Capability			
Administrative and Technical Capability			
Fiscal Capability			
Community Political Capability			

Please email completed forms to Michael.Boldosser@montgomerycountymd.gov

2

County Capability Assessment Survey – Plans, Tools and Programs

- Hazard Mitigation Plan (2012 and 2018)
- Emergency Operations Plan (2017)
- Continuity of Operations Plan (2017)
- Floodplain Management Ordinance
- Zoning Regulations (Oct 2014)
- Subdivision Regulations (Feb 2017)
- Comprehensive Land Use Plan
- Stormwater Management Plan (2012 & 2018)
- Capital Improvement Plan (annually)
- Storm Ready
- Building Code: Latest Code – International Green Construction Code (Dec 2017)

Plan Title	Barnesville	Brookville	Chevy Chase	Chevy Chase View	Chevy Chase Village	Gaithersburg	Damascus	Garrett Park	Glen Echo	Kensington	Laytonsville	Martin's Additions	North Chevy Chase	Poolesville	Rockville	Somerset	Takoma Park	Washington Grove
Emergency Operations Plan					X	X								X	X			
Evacuation Plan														X				
Continuity of Operations Plan					X	X									X		X	
Floodplain Management Ordinance						X								X	X		X	
Zoning Regulations	X				X	X								X	X		X	
Subdivision Regulations	X					X								X			X	
Comprehensive Land Use Plan	X					X								X			X	
Stormwater Management Plan					X	X									X			
Natural Resource Protection Plan						X									X			
Capital Improvement Plan	X				X	X								X			X	
Firewise Community						X												
Storm Ready																		
Building Code	X				X	X											X	

Staff and Technical Assistance – Local Jurisdictions

Available Staff and Technical Assistance:

Staff or Personnel Resource	Yes	No	Department or Staff Member
Land Use/Development Planning	75 %	13 %	Planning / Town Manager / Community Dev.
Engineering	100 %		Contract /
Emergency Manager	100 %		Public Safety / Town Manager
Floodplain Manager	75 %	13 %	Environment / Parks
Staff with experience using Geographic Information Systems software	75 %	25 %	Community Dev.
Grant-writing staff or other fiscal staff	75 %	13 %	Town Manager / Community Dev.

Self-Assessment of Capability:

Area	Degree of Capability		
	Limited	Moderate	High
Planning and Regulatory Capability	28 %	28 %	44 %
Administrative and Technical Capability	28 %	28 %	44 %
Fiscal Capability	28 %	28%	44 %
Community Political Capability	15 %	42 %	43 %



Potential Natural Hazards

Results of Hazard Identification Exercise

- High Winds (9)
- Extreme Cold (5)
- Invasive Species (4)
- Radon Exposure (2)
- Hailstorms (1)
- Landslide (0)

Potential Natural Hazards

Results of Hazard Identification Exercise

- High Winds (9) - Address in Severe Storm Profile
- Extreme Cold (5) - Address in Winter Storm Profile
- Radon Exposure (2)
- Hailstorms (1) - Address in renamed Thunderstorms to “Severe Storm” Profile
- Landslide (0) - Address in Land Subsidence / Karst Profile

Potential Human -Made Hazards

Results of Hazard Identification Exercise

Civil Disturbance (10)

Utility Interruption (8)

Urban Fire and Explosion (4)

War and Criminal Activity (2)

Building and Structure Collapse (1)

Drowning (1)

Mass Food/Animal Feed Contamination (1)

Transportation Accident (1)

Mining Hazards (0)

Disorientation (0)

Potential Human -Made Hazards

Results of Hazard Identification Exercise

Civil Disturbance (10) - New Profile for 2018

Utility Interruption (8) - New Profile for 2018

Urban Fire and Explosion (4) - New Profile for 2018

War and Criminal Activity (2)

Building and Structure Collapse (1)

Drowning (1)

Mass Food/Animal Feed Contamination (1)

Transportation Accident (1)

Mining Hazards (0)

Disorientation (0)

Natural Hazards Results

High-Ranked Hazards

- ~~Thunderstorms~~
- Severe Storm
- Winter Storm
- Extreme Heat

Moderate-Ranked Hazards

- Flooding
- Hurricane/Tropical Storm
- Fire
- Water Shortage /Drought

- ~~Hazardous Materials (Move)~~
- ~~Dam Failure (Move)~~

Low-Ranked Hazards

- Tornado
- Earthquakes
- Land Subsidence/Karst

Human-made / Technological Hazards Results

- Civil Disturbance - New Profile
- Utility Interruption - New Profile
- Urban Fire and Explosion - New Profile
- Hazardous Materials
- Dam Failure

*Hazards will be addressed in separate pull out section in the Appendix of the hazard mitigation plan.



Profiling Hazards

- Location and Extent
 - *Where* does the hazard happen?
- Range of Magnitude
 - How *minor or major* might the event be?
- Past Occurrence
 - *When and where* has the event happened in the past?
- Future Occurrence
 - *How likely* is it that the event will happen in the future?
- Vulnerability Assessment
 - What *people, structures, and critical facilities* are at risk?

Ranking Hazards

- Standardized method to rank hazard risks
- Completed on a Countywide basis

$$\begin{aligned} \text{Risk Factor Value} = & \\ & [(Probability \times .30) + (Impact \times .30) + \\ & (Spatial Extent \times .20) + (Warning Time \times .10) + \\ & (Duration \times .10)] \end{aligned}$$

Risk Factor Ranking Results for Hazards in the 2012 HMP Update.

HAZARD RISK	HAZARD NATURAL (N) or HUMAN-MADE (H)	RISK ASSESSMENT CATEGORY					RISK FACTOR
		PROBABILITY (30%)	IMPACT (30%)	SPATIAL EXTENT (20%)	WARNING TIME (10%)	DURATION 10%	
HIGH (3.0 or higher)	Thunderstorm (N)	1.2 (4)	0.6 (2)	0.8	0.3	0.3	3.2
	Winter Storm (N)	0.9	0.9	0.8	0.2	0.3	3.1
	Extreme Heat (N)	0.9	0.9	0.8	0.1	0.3	3.0
Moderate (2.0-2.9)	Flooding (N)	0.9	0.6	0.4	0.3	0.2	2.4
	Hurricane/Tropical Storm (N)	0.9	0.3	0.8	0.1	0.3	2.4
	Fire (N)	0.9	0.6	0.4	0.3	0.2	2.4
	Water Shortage (N)	0.6	0.3	0.8	0.2	0.3	2.2
	Hazardous Materials (H)	0.9	0.9	0.4	0.4	0.2	2.8
	Dam Failure (H)	0.6	0.9	0.4	0.3	0.3	2.5
Low (0.1-1.9)	Tornado (N)	0.6	0.3	0.4	0.4	0.2	1.9
	Earthquake (N)	0.3	0.3	0.6	0.4	0.2	1.8
	Land Subsidence/Karst (N)	0.3	0.3	0.2	0.4	0.1	1.3

High-Ranked Hazards

- Severe Storms
- Winter Storm
- Extreme Heat

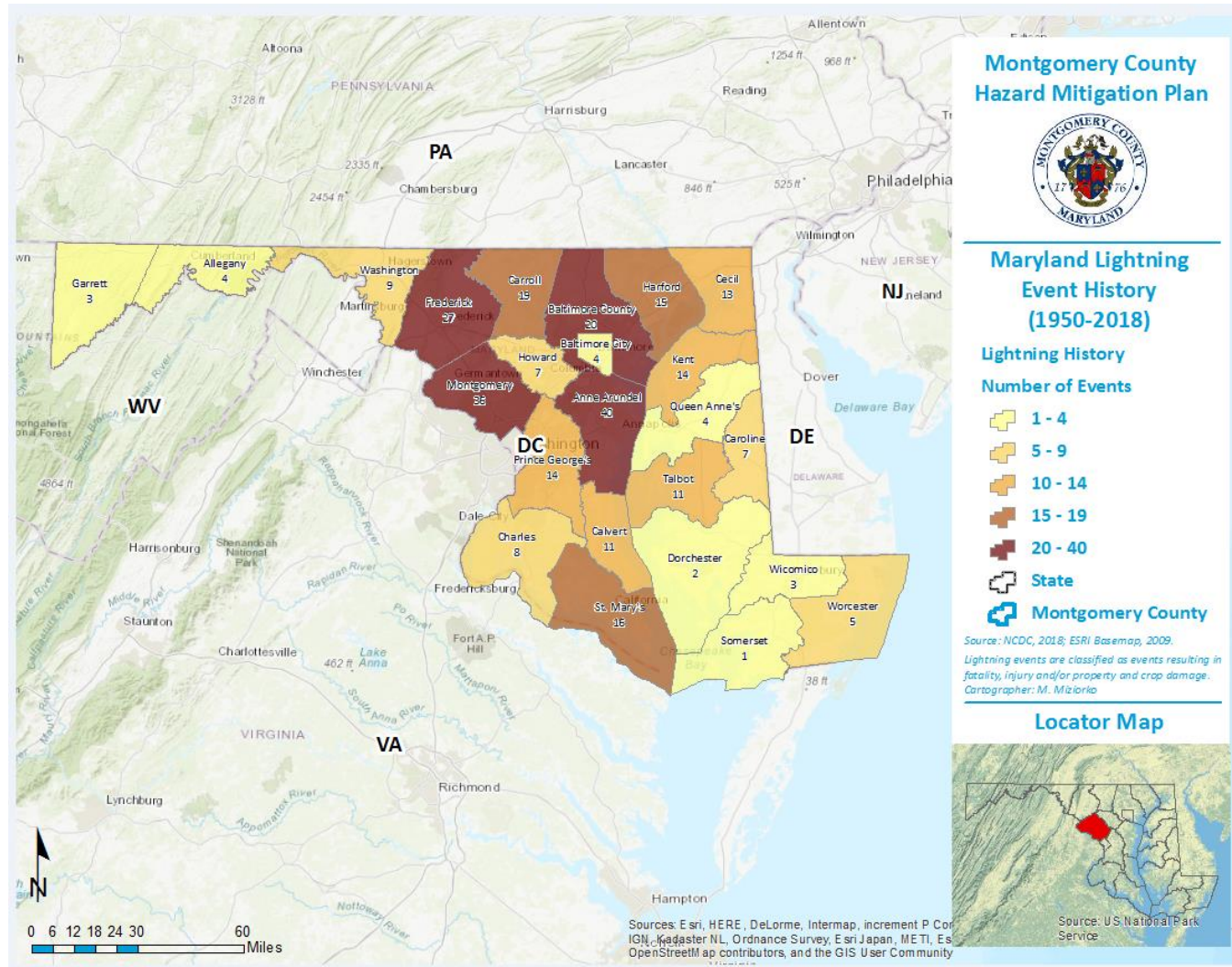
Moderate-Ranked Hazards

- Flooding
- Hurricane/Tropical Storm
- Fire
- Water Shortage/Drought

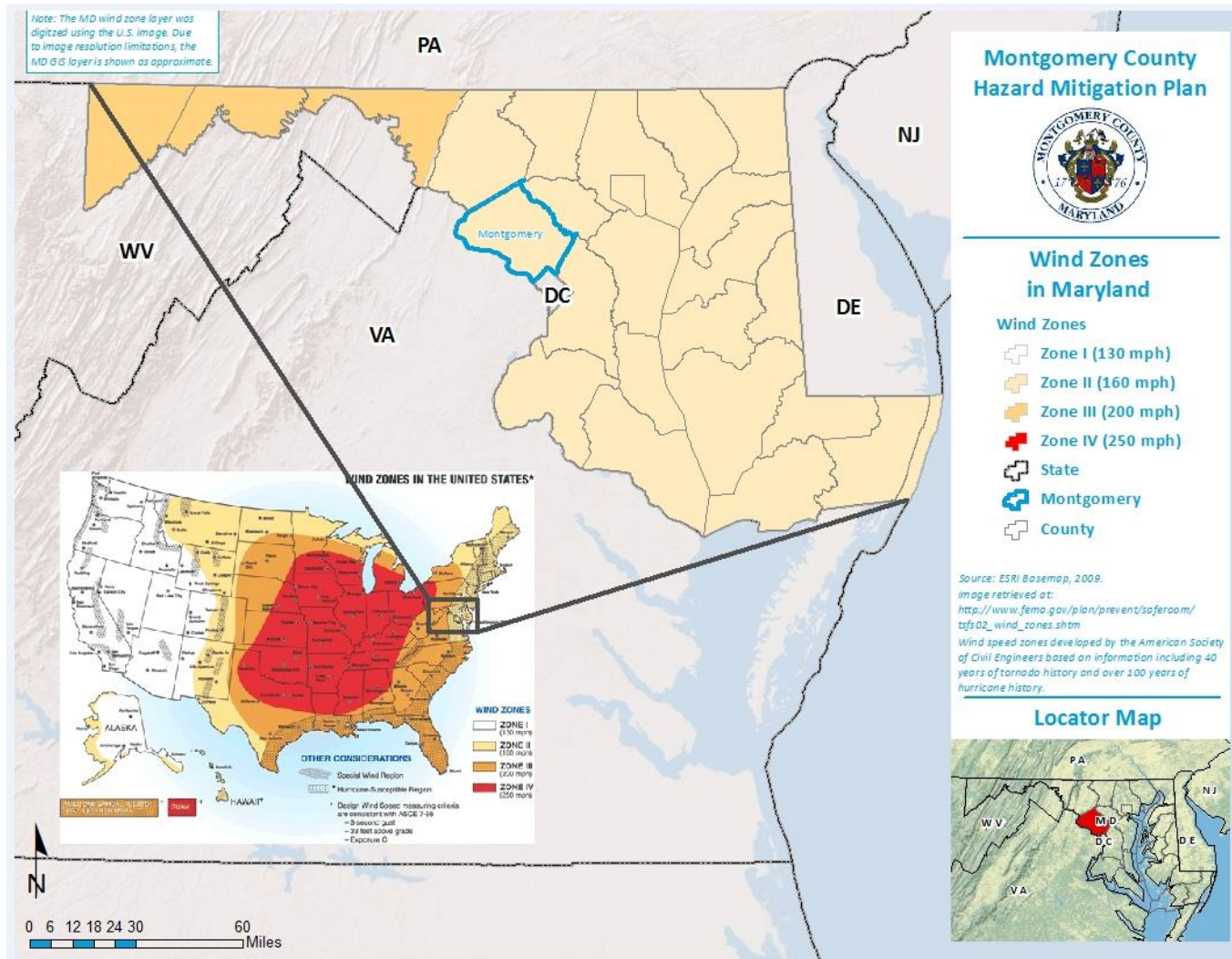
Low-Ranked Hazards

- Tornado
- Earthquakes
- Land Subsidence/Karst

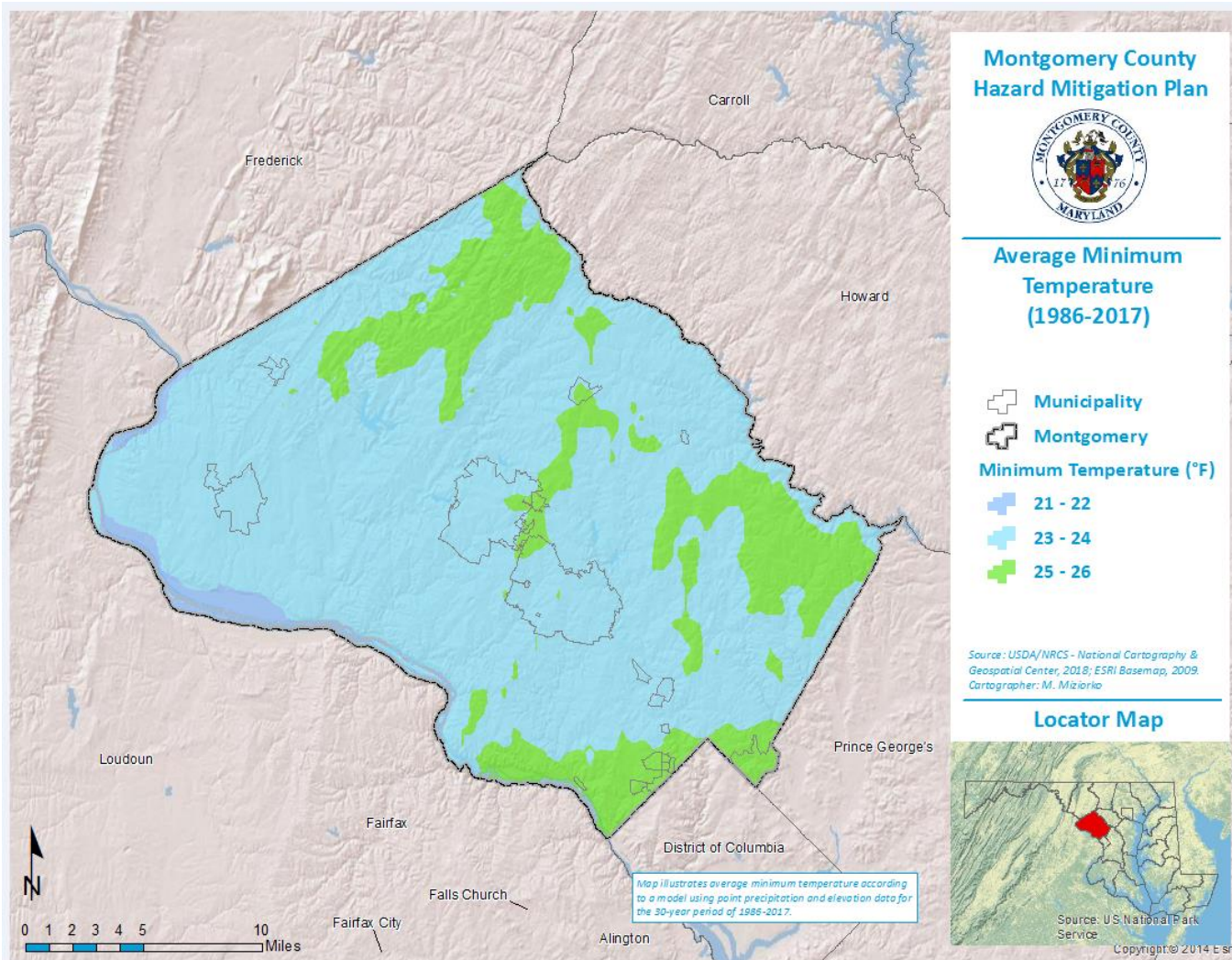
Severe Storm (Lightning) Summary



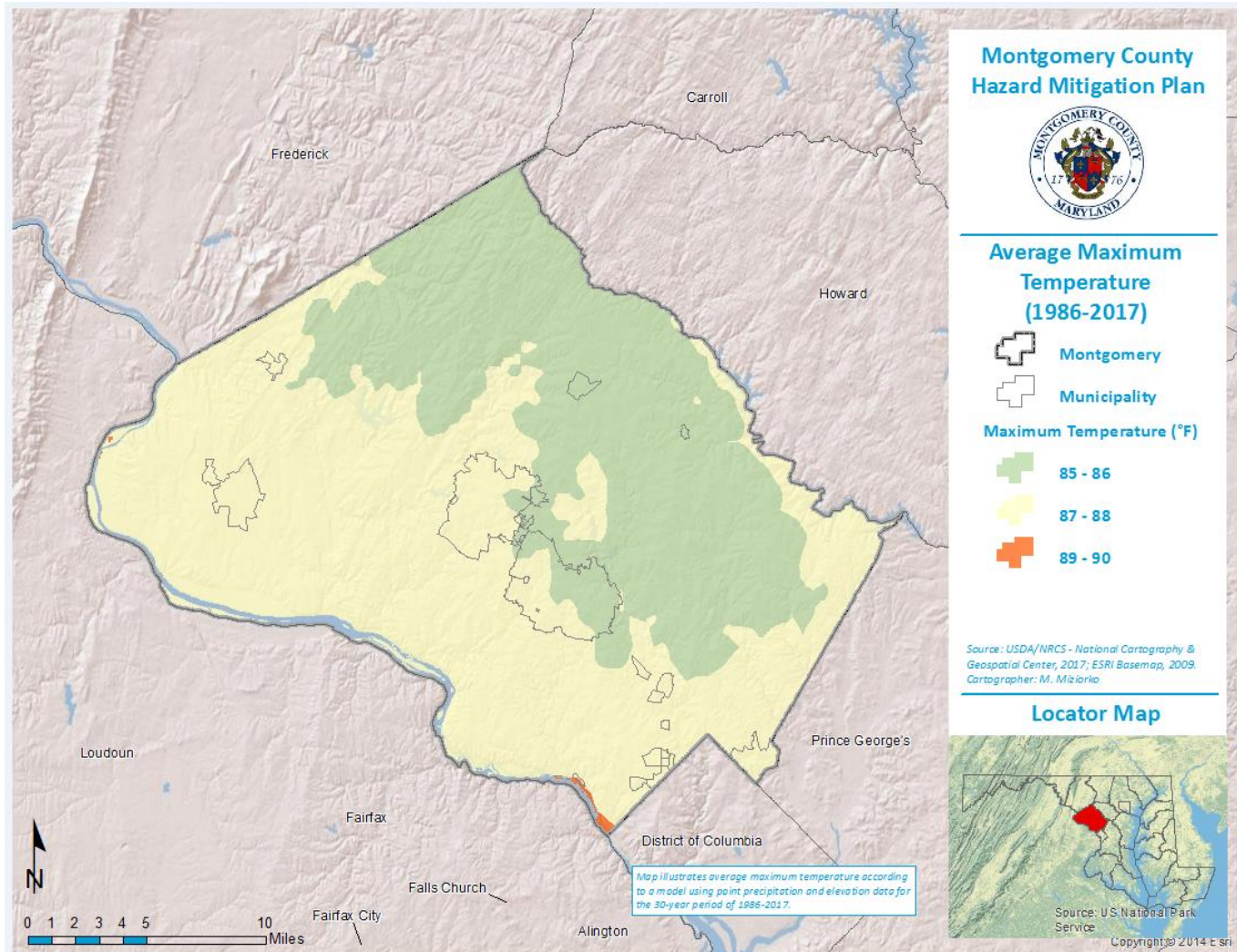
Severe Storm (Wind) Summary



Winter Storms (Extreme Cold) Summary



Extreme Heat Summary



High-Ranked Hazards

- Severe Storms
- Winter Storm
- Extreme Heat

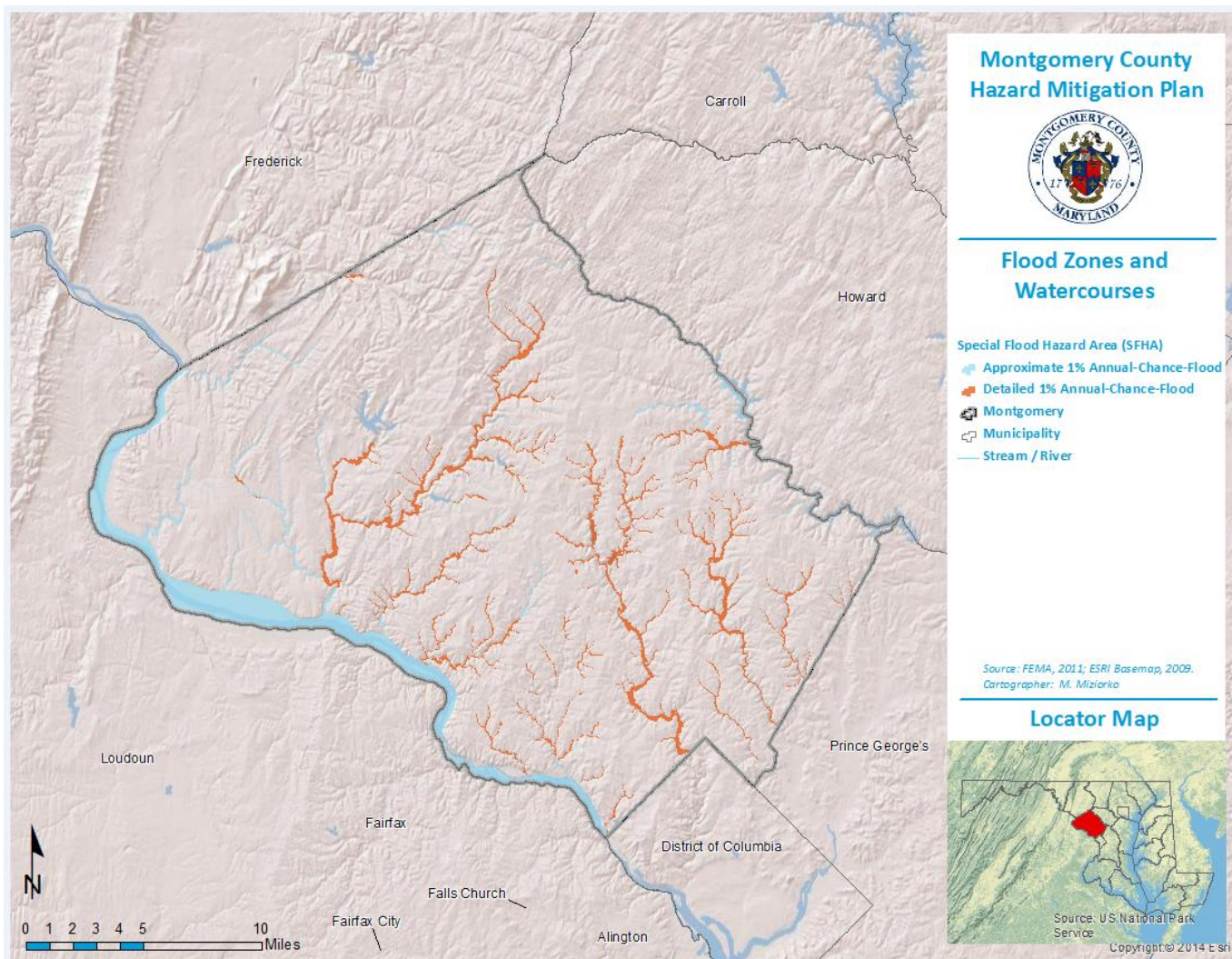
Moderate-Ranked Hazards

- Flooding
- Hurricane/Tropical Storm
- Fire
- Water Shortage /Drought

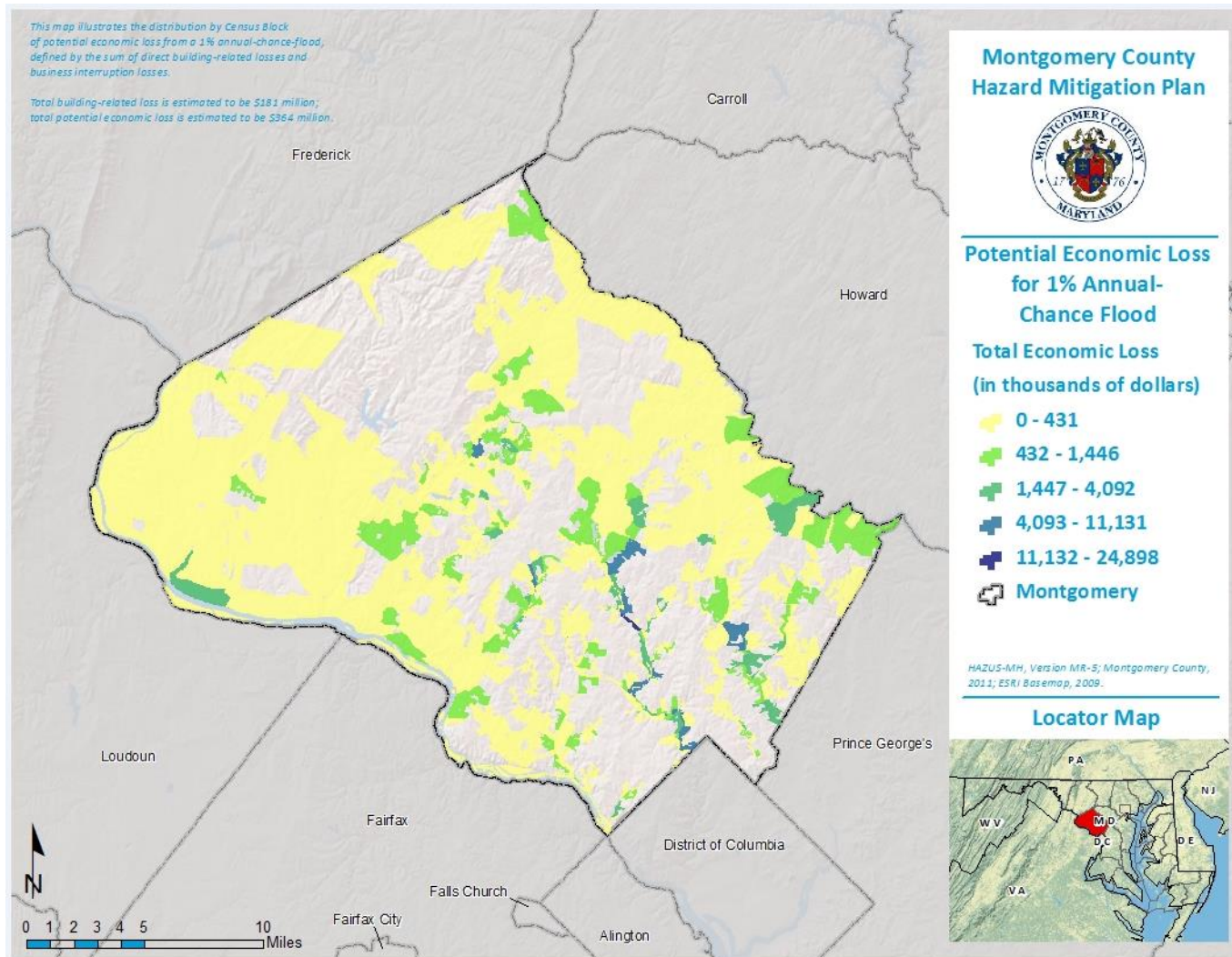
Low-Ranked Hazards

- Tornado
- Earthquakes
- Land Subsidence/Karst

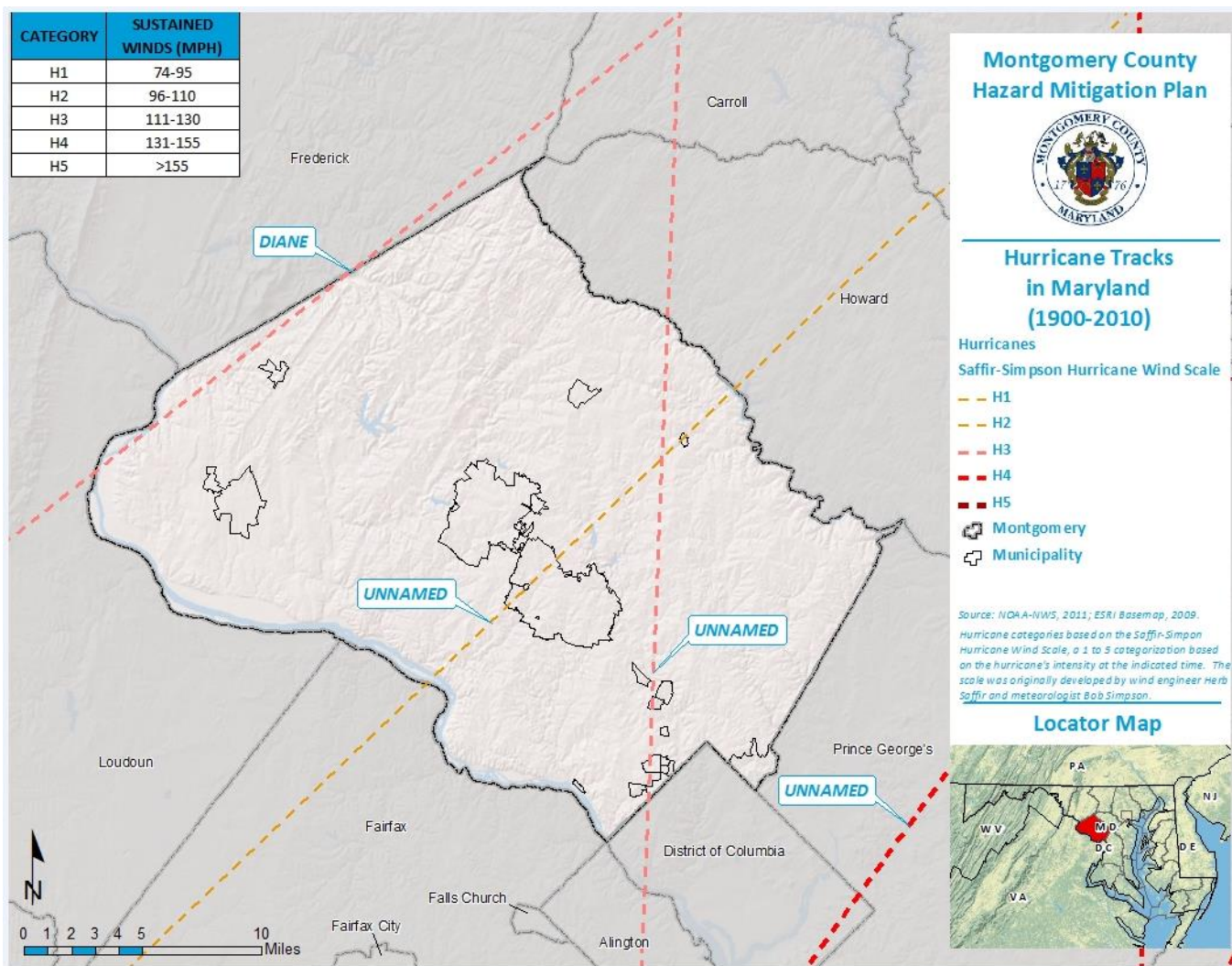
Flooding Summary



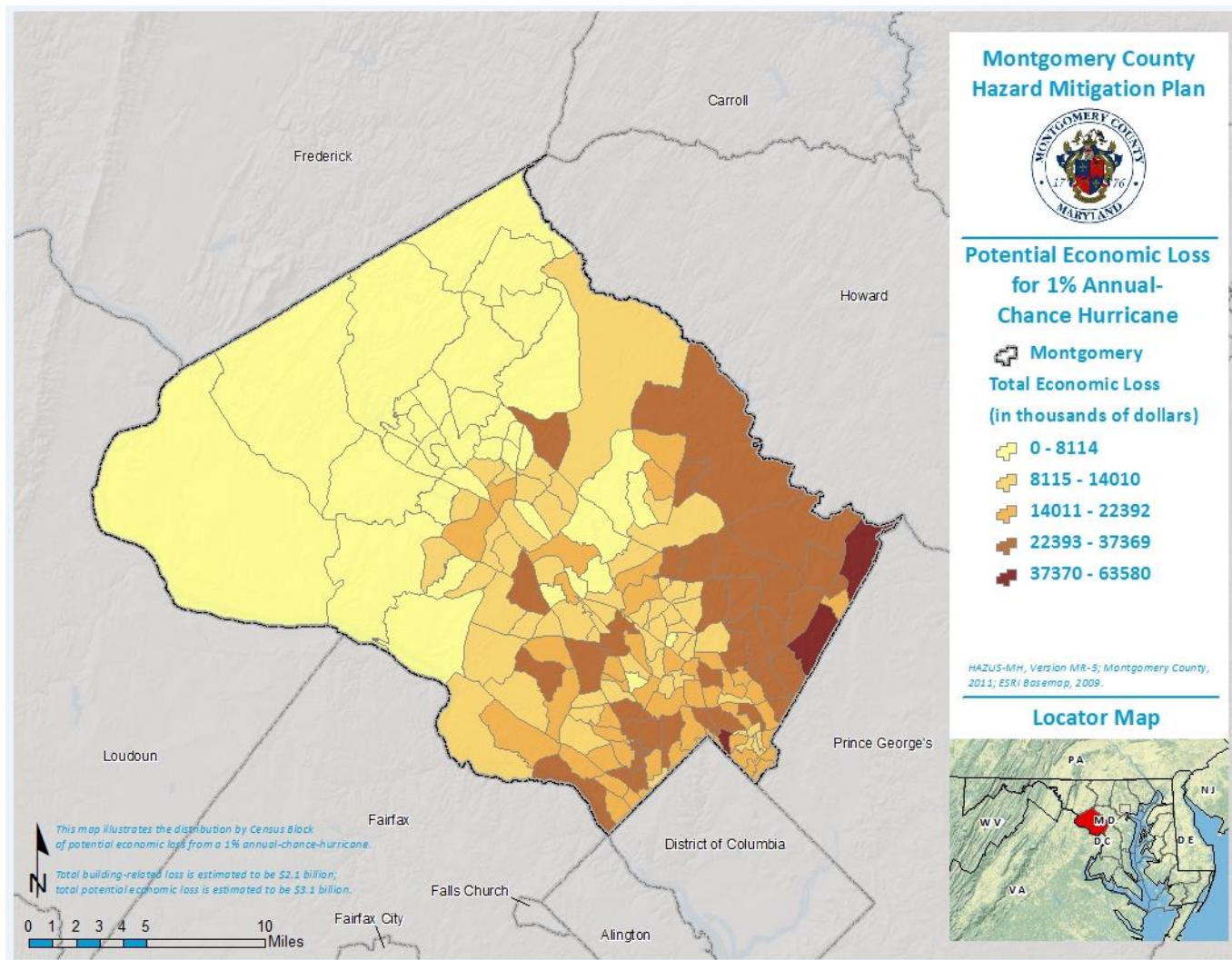
Flooding (HAZUS) Summary



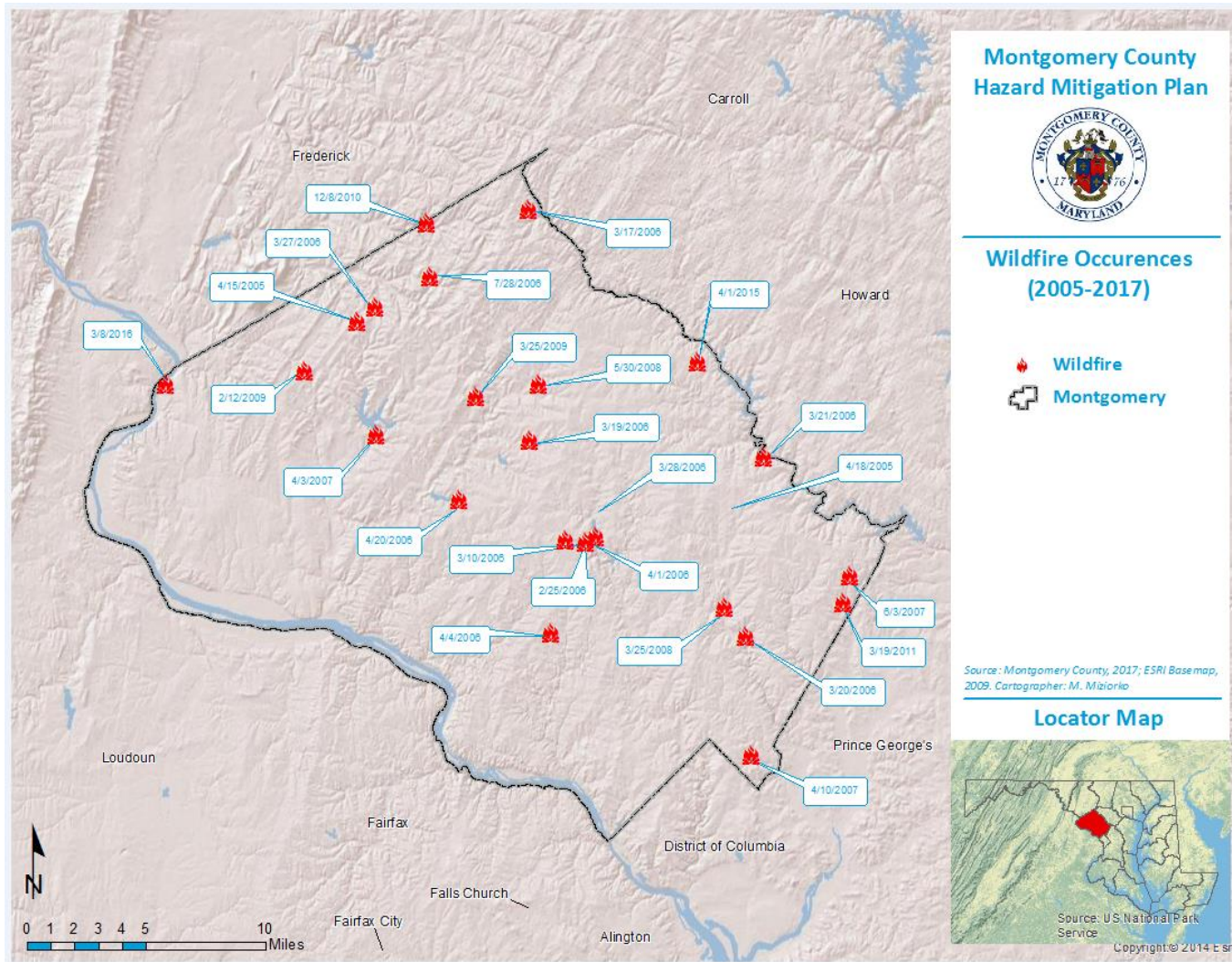
Hurricane/Tropical Storm Summary



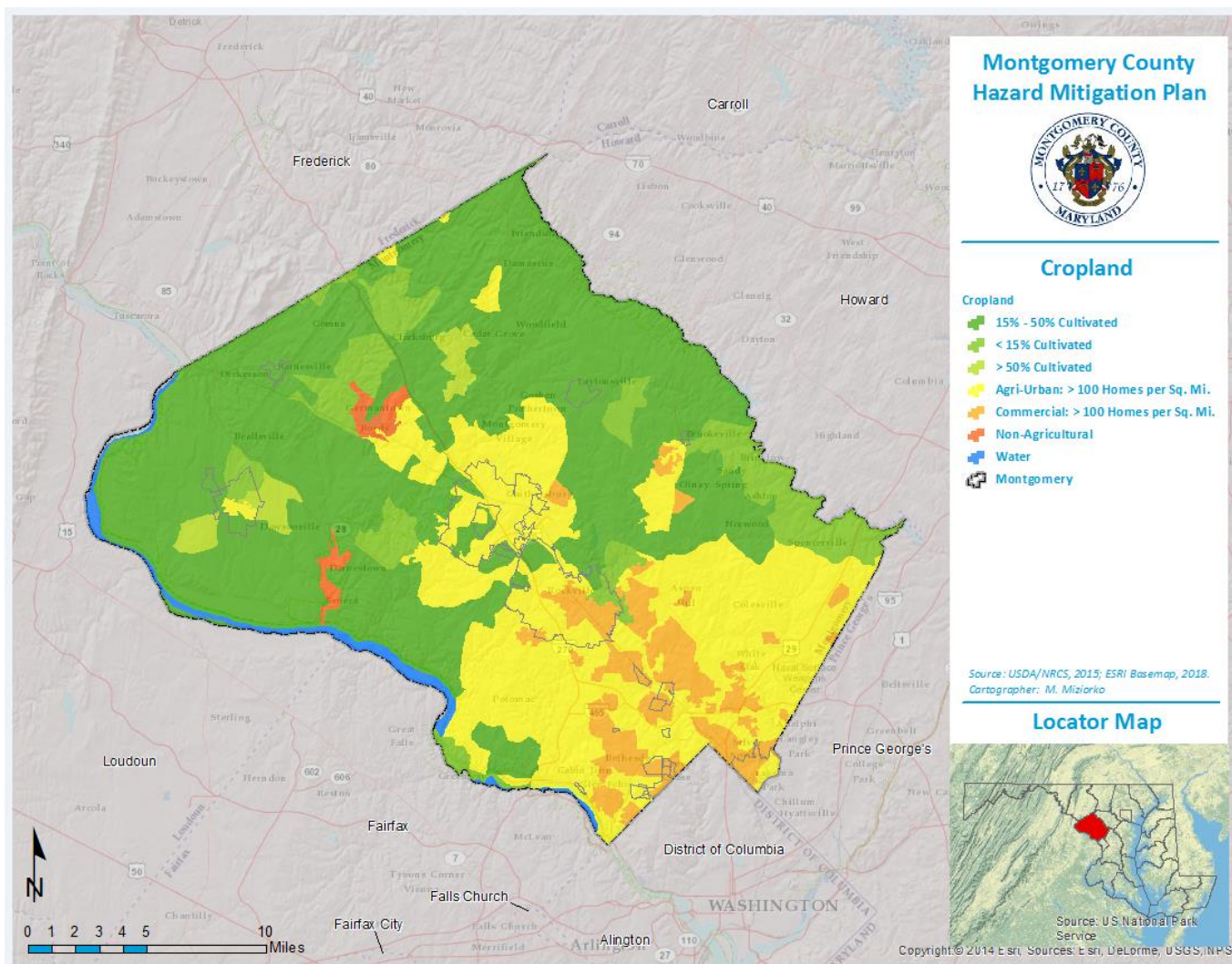
Hurricane/Tropical Storm (HAZUS) Summary



Wildfire Summary



Water Shortage/Drought Summary



High-Ranked Hazards

- Severe Storms
- Winter Storm
- Extreme Heat

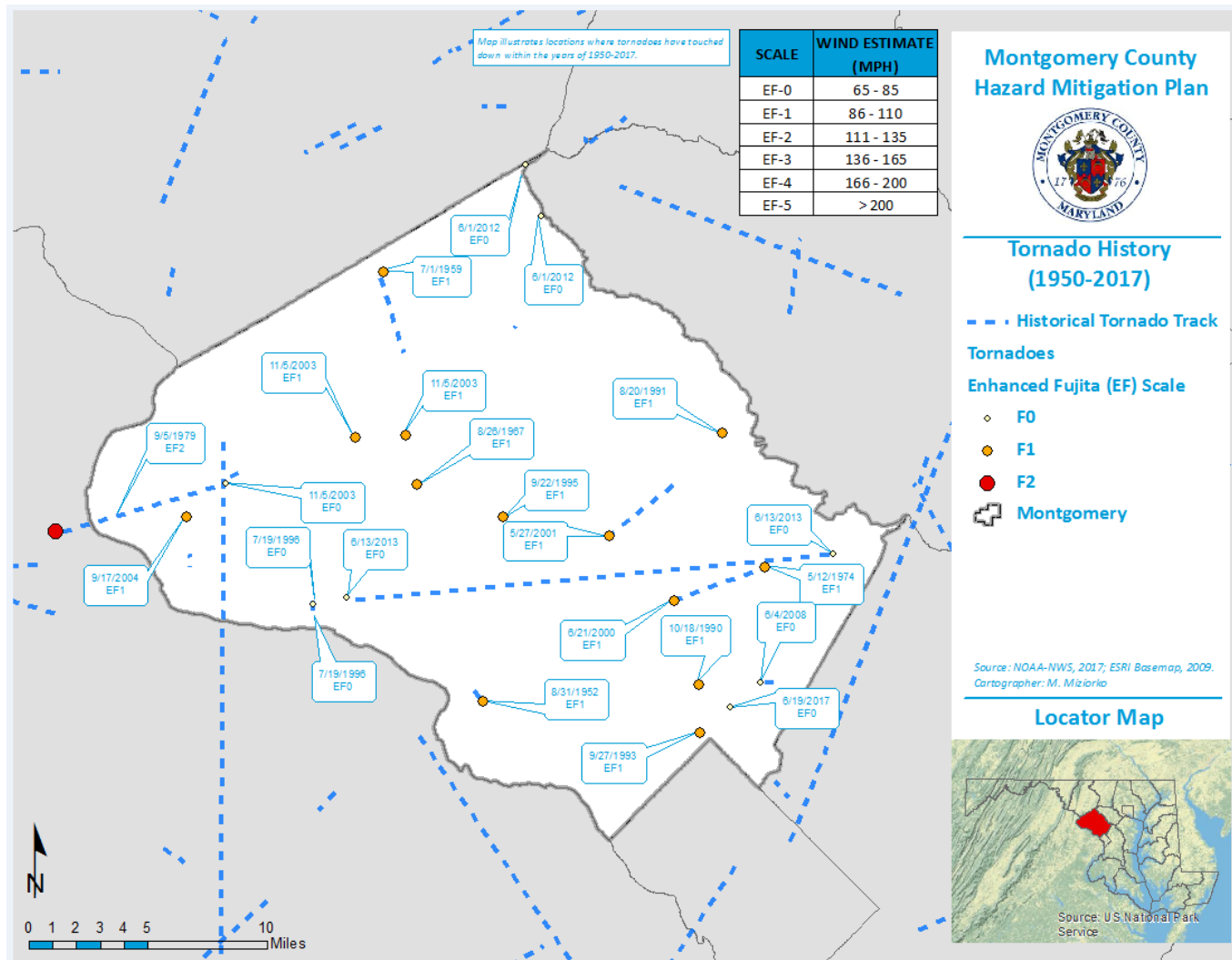
Moderate-Ranked Hazards

- Flooding
- Hurricane/Tropical Storm
- Fire
- Water Shortage / Drought

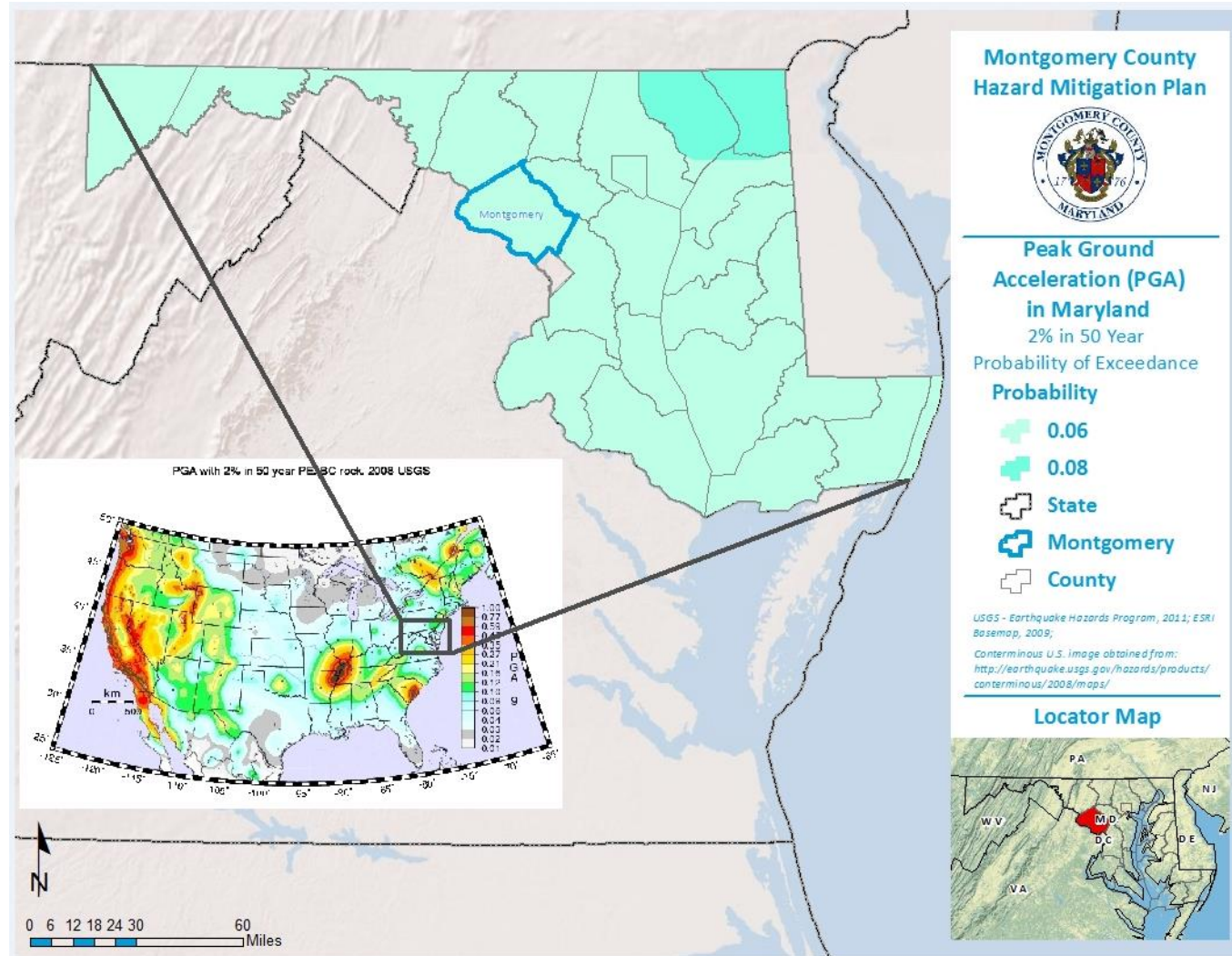
Low-Ranked Hazards

- Tornado
- Earthquakes
- Land Subsidence/Karst

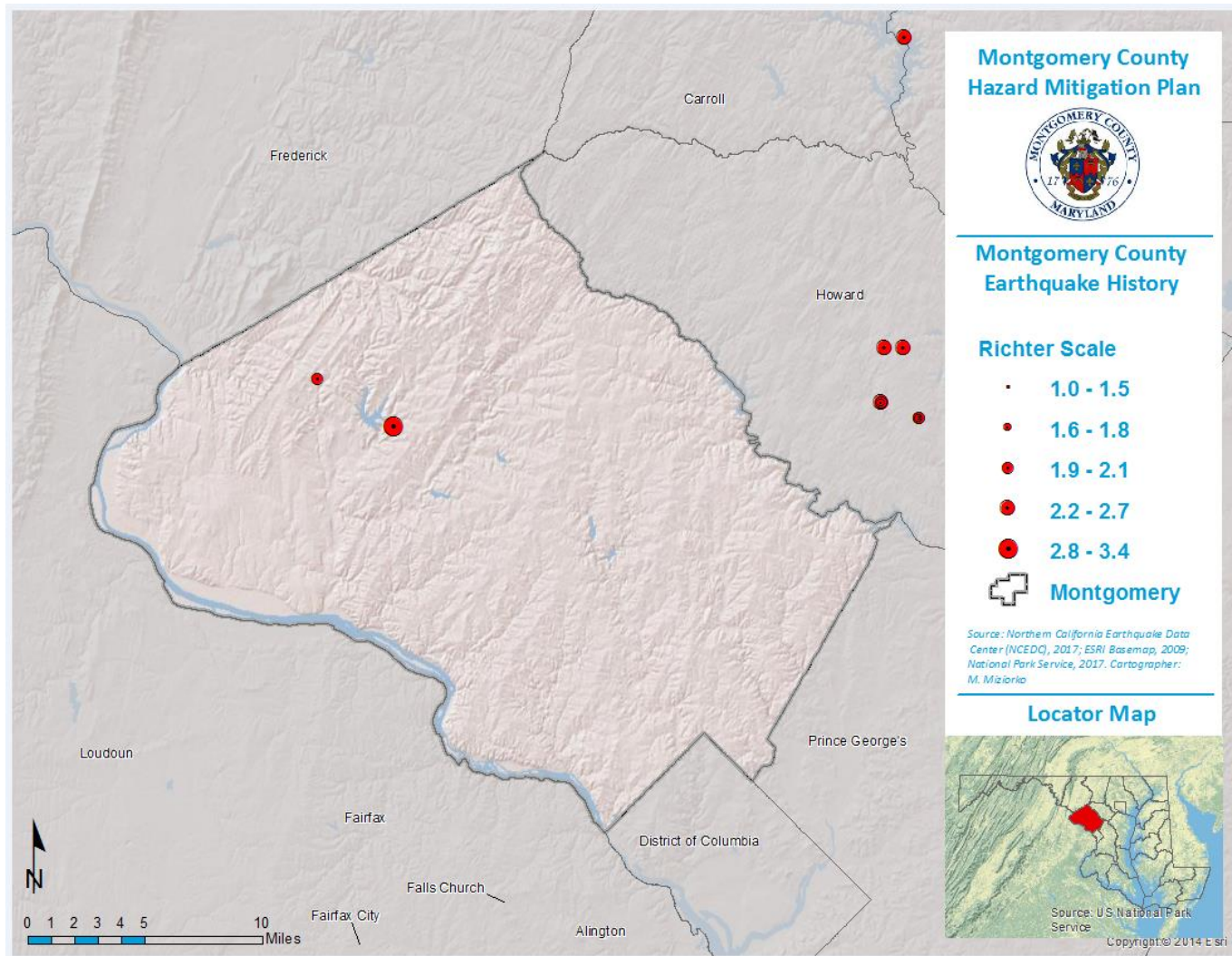
Tornado Summary



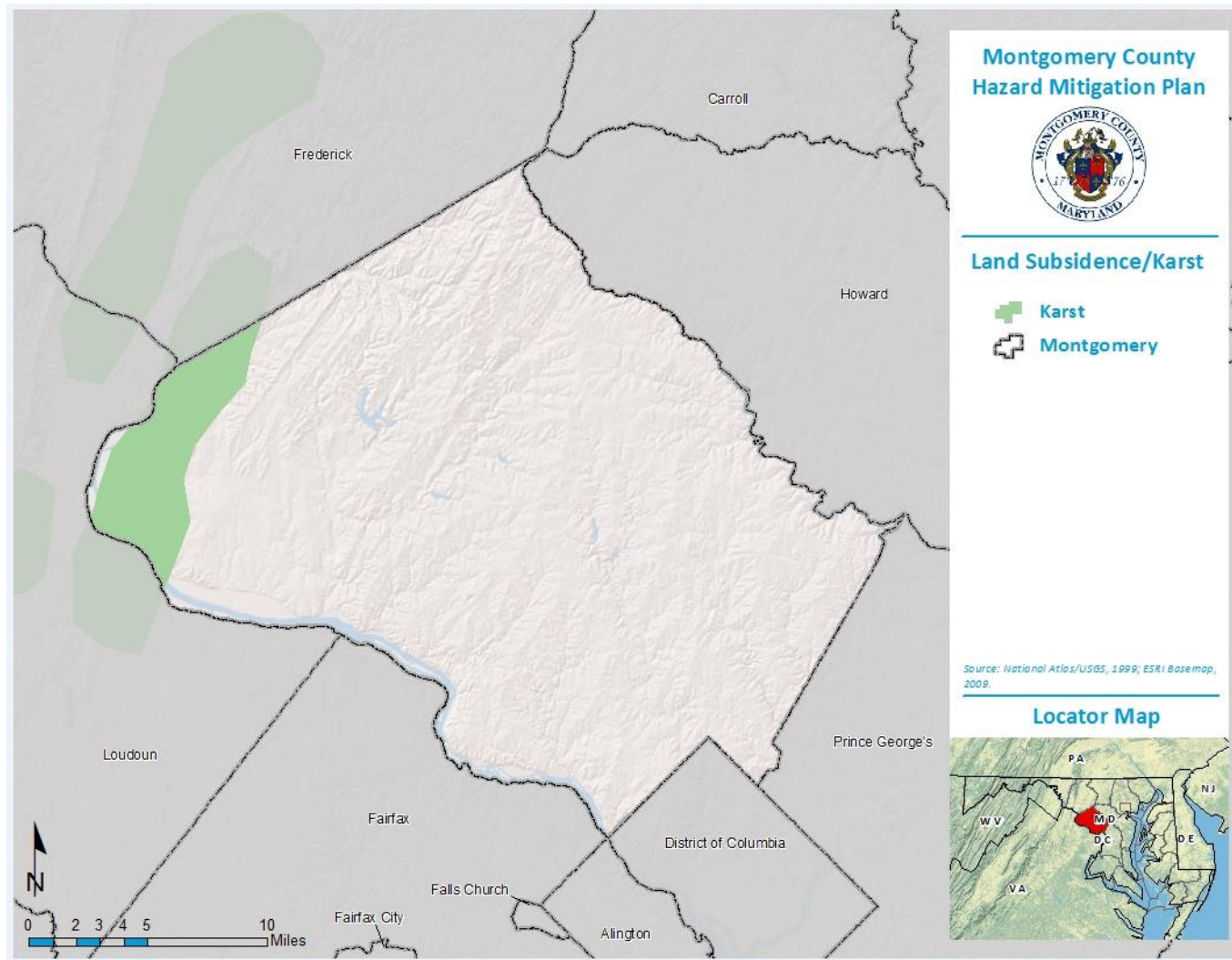
Earthquake Summary



Earthquake Summary



Land Subsidence/Karst Summary







- This exercise allows you to evaluate previously profiled hazards and to assess the risk of any new hazards that may exist.
 - Refer to Hazard Priority Worksheet
 - See Excel spreadsheet



Ranking Hazards

- Standardized method to rank hazard risks
- Completed on a Countywide basis

$$\begin{aligned} \text{Risk Factor Value} = & \\ & [(Probability \times .30) + (Impact \times .30) + \\ & (Spatial Extent \times .20) + (Warning Time \times .10) + \\ & (Duration \times .10)] \end{aligned}$$

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	Hurricane/Tropical Storm (N)	0.9	0.3	0.8	0.1	0.3	2.4
	Fire (N)	0.9	0.6	0.4	0.3	0.2	2.4
	Water Shortage (N)	0.6	0.3	0.8	0.2	0.3	2.2
	Hazardous Materials (H)	0.9	0.9	0.4	0.4	0.2	2.8
	Dam Failure (H)	0.6	0.9	0.4	0.3	0.3	2.5
Low (0.1-1.9)	Tornado (N)	0.6	0.3	0.4	0.4	0.2	1.9
	Earthquake (N)	0.3	0.3	0.6	0.4	0.2	1.8
	Land Subsidence/Karst (N)	0.3	0.3	0.2	0.4	0.1	1.3



Existing Goals

Goal 1: To minimize the losses of life & property due to thunderstorms in Montgomery Co.

Goal 2: To minimize the losses of life & property due to winter storms in Montgomery Co.

Goal 3: To minimize the losses of life & property due to extreme heat in Montgomery Co.

Goal 4: To minimize the losses of life & property due to fire in Montgomery Co.

Goal 5: To minimize the losses of life & property due to flooding in Montgomery Co.

Goal 6: To minimize the losses of life & property due to hurricanes and tropical storms in Montgomery Co.

Goal 7: To minimize the losses of life property due to water shortage & drought in Montgomery Co.

Goal 8: To minimize the losses of life & property due to tornadoes in Montgomery Co.

Goal 9: To minimize the losses of life & property due to earthquake in Montgomery Co.

Goal 10: To minimize the losses of life & property due to land subsidence & karst in Montgomery Co.

Goal 11: To minimize the losses of life & property due to hazardous materials in Montgomery Co.

Goal 12: To minimize the losses of life & property due to dam failure in Montgomery Co.

Goal 13: To minimize the losses of life & property due to natural, technological, and/or threat induced hazards to include buildings, infrastructure, critical facilities, & critical infrastructure

Proposed Goal

Efficient use of County resources that are needed to minimize the losses of life and property from natural hazards and protection of County assets, infrastructure, and critical facilities.

Proposed Objectives

- Encourage building and land use regulations that increase safety and resiliency and reduce risks posed by natural disasters.
- Protect public health, safety, and welfare by increasing public awareness of existing natural hazards and by fostering individual and public responsibility in mitigating risks caused by those hazards.
- Ensure that infrastructure is adequate and properly maintained to provide continued functionality of all critical services necessary to protect residents, and property.
- Improve communications and increase natural hazard awareness through education and citizen participation.
- Enhance the capabilities of local jurisdictions to identify and mitigate natural hazards.
- Participate and comply with the National Flood Insurance Program (NFIP) through floodplain identification, mapping and floodplain management.
- Promote actions that protect historic and cultural resources, while enhancing hazard mitigation and community resiliency.



Date	Task Item
November 2017	Planning Process began
December 14, 2017	Official Project Kick-off Meeting
January 2018	Data Collection and Risk Assessment
February 2018	Risk Assessment and Feedback Meeting
April 2018	Hazard Mitigation Strategy Development Workshop/Meeting
April 2018	Hazard Mitigation Strategy Development
May 2018	Commissioners Presentation & Public Review
July 2018	Deliver to MEMA/FEMA for Review
September 2018	Distribute to Municipalities for Adoption

- Visit www.montgomerycountymd.gov/OEMHS
- Online home of the planning process



Severe Storms

Severe weather, including lightning, hail, flooding, and strong wind, is most common during the spring and summer months. Occasionally, tornadoes and hurricanes can also occur.

Remember:

- A Severe Storm / Thunderstorm **Watch** means that there is a possibility of storm activity in the area.
- A Severe Storm / Thunderstorm **Warning** means that activity is occurring or will occur soon; take shelter immediately.

Prior to the Emergency

- Ensure that you have enough food, water, medication (if needed) and batteries. Because power is often lost during severe storms, food that does not require cooking should be considered.
- Check portable radios, smoke detectors, and flashlights to ensure they are properly operating and that the batteries are fresh.
- Stay tuned to local weather and news reports. If emergency officials tell you to evacuate, do so without delay.
- If you are located in a low-lying area and flooding is anticipated, remove furniture and valuables from the areas that are prone to water accumulation.

Tip: For more information on flood insurance, visit FEMA's Floodsmart website at <http://www.floodsmart.gov>

- If strong winds are predicted (in excess of 70 miles per hour), consider boarding up your windows to prevent breakage. Also, trash cans and other items around the yard should be taken indoors to prevent the wind from carrying them away.
- Run necessary errands before severe weather begins; don't wait until the storm begins to venture outside.
- Ensure that your vehicle is fueled. Don't drive during the storm unless it is necessary. If you must, stay away from roads near rivers and streams and areas where flooding may occur. **Never cross over a roadway that has flowing water.** If your vehicle stalls, abandon it immediately and seek higher ground.

During the Emergency

- Hazard Mitigation Plan Steering Committee:
 - Conduct Local Jurisdiction Interviews
 - Identify Mitigation Actions
 - Provide Previous Requested Data
- Project Team:
 - Update project website with meeting materials
 - Follow up on data requests

Next Meeting: Date TBD



Michael Boldosser, CEM, MDPEMP
 Emergency Management Specialist II
 Montgomery County Office of Emergency Management and Homeland Security
Michael.Boldosser@montgomerycountymd.gov
 (240) 777-2334

Laura Johnson
 President, Training Outreach
Ljohnson@trainingoutreach.com
 (301) 257-7439

Mark James
 Hazard Mitigation Planner, Michael Baker International
Mark.James@mbakerintl.com
 (571) 357-6029

Desirae Williams, AICP
 Hazard Mitigation Planner, Michael Baker International
Desirae.Williams@mbakerintl.com
 (571) 357-6019

